

## **TONER CARTRIDGE ADAPTOR**

### **BACKGROUND OF THE INVENTION**

Modern laser printers operate in essentially the following manner: An electrostatically charged drum is exposed to light on portions which correspond to the light and dark portions of a digital image to be printed on a page. The exposed portions of the drum are discharged, while the remaining drum portions remain charged. The charged portions of the drum attract particles of dry powdered ink called toner. Paper is then pressed about the drum such that the toner leaves an image imprint on the paper. The paper is then run through a heated roller which, through heat and pressure, fuses and bonds the toner to the paper, resulting in a piece of paper imprinted with the image desired to be printed. Modern copiers operate in a similar manner, wherein the electrostatically charged drum is exposed to light on portions that correspond to the light and dark portions of an image to be copied. These portions of the image are determined by exposing the image itself to a light source and determining which portions reflect the light and which absorb it.

The toner used by the printer or copier is typically stored in replaceable cartridges. When toner in the cartridge is used up, the empty cartridge is removed from the printer and replaced with a full cartridge.

Toner cartridges are manufactured in many different configurations and sizes. In many cases, a manufacturer will produce cartridges that are substantially similar in overall configuration to each other, but differ in size. This size difference may exist for a variety of reasons, 1) to contain varying amounts of toner to accommodate varying amounts of toner use (light duty vs. heavy duty usage), 2) to conform to various printer/copier configurations (smaller or light duty machines vs. larger or

heavy duty machines), or to conform to differences in how individual printer/copier models are designed and manufactured.

### **SUMMARY OF THE INVENTION**

5       The present invention provides an apparatus for adapting smaller toner cartridges for use in laser printers/copiers which otherwise accept only larger toner cartridges.

Toner cartridges often include various mechanisms for engaging the cartridge within a printer or copier, opening and closing a cartridge door to release toner, and  
10     transferring the toner from the cartridge to the paper within the printer or copier. It provides the versatility of using smaller toner cartridges in machines designed to accept larger cartridges when it is economically or logically desirable to do so. A printer/copier user may find that his use of the printer or copier is such that more expensive, larger toner cartridges are not necessary. Instead, a user can quickly attach  
15     the present invention to a smaller toner cartridge making it suitable for use with printers or other equipment designed to accept only larger cartridges.

It is therefore an object of the present invention to adapt smaller toner cartridges for use in laser printers/copiers which otherwise accept only larger toner cartridges.

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### **DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a front perspective view of a preferred embodiment of the invention attached to a toner cartridge.

FIG. 2 is a rear perspective view of a preferred embodiment of the invention.

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## **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

Fig. 1 is an illustration of a small toner cartridge 100 with an attached adapter 10 of a preferred embodiment of the present invention. Adapter 10 is preferably constructed of plastic. Now, referring to Fig. 2, a preferred embodiment of adapter 10 is disclosed. Base 20 is configured to act as a rail or similar lateral portion of the housing of a larger toner cartridge. The configuration of base 20 is such that a smaller toner cartridge 100, as shown in Fig. 1, can be properly engaged within a printer or copier designed to accommodate only a larger toner cartridge. Brackets 30 and 40 facilitate the attachment of lengthening adapter 10 to a smaller toner cartridge 100.

Brackets 30 are notched such that adapter 10 remains attached to smaller toner cartridge 100. Bracket 40 provides a second degree of support to adapter 10, insuring it stays in proper alignment so that it may engage smaller toner cartridge 100.

Brackets 30 and 40 are snapped within corresponding openings in wall portion 60 of cartridge 100. With adapter 10 installed, smaller toner cartridge 100 can be engaged within a printer or copier, as if it were a larger toner cartridge.

In the following, the patent claims will be given, and the various details of the invention can show variation within the scope of the inventive idea defined in the claims and differ even to a considerable extent from the details stated above by way of example only. As such, the examples provided above are not meant to be exclusive and many other variations of the present invention would be apparent to those skilled in the art, and are contemplated to be within the scope of the appended claims.